



# Opera for connected TVs

## The revolution will be televised

Television is moving toward becoming a dynamic component of a multi-screen, digital, connected home full of technologies that enhance and complement one another. The Internet-on-TV experience extends into a more inclusive, interactive and intuitive experience, allowing broadcasters, OEMs, IPTV operators, service, content and OTT providers to take full advantage of large-screen real estate combined with a broadband connection.

To exploit the near-universal presence of television and Internet connectivity and to make services and content more relevant, accessible and useful, a variety of principles, rights, infrastructures and technologies have to come together. Opera Software focuses on technology, and Opera for connected TVs, by embracing open and industry standards, such as HTML5, W3C widgets, OIPF and HbbTV, gives players within these complex and intertwined ecosystems the insurance to deliver any live or on-demand content or service, on any STB or TV from any source.

### The challenge

Stakeholders in the connected-TV ecosystem need to harness the Internet on TV in ways that give users value while creating viable business propositions. Implementation of the connected-TV experience also requires cooperation, or at least game rules, among companies within the whole value chain, from content/service/OTT providers to silicon vendors. Conquering these challenges will demand technology solutions that power TV within a connected-home network, in which consumers access Internet services in a seamless, straightforward, already configured manner.

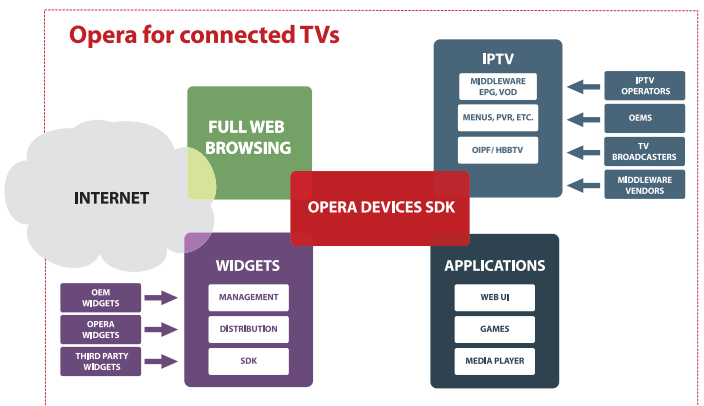
### Insurance for the future

Whether related to IPTV services, broadcast-related portals or full-web browsing, Opera for connected TVs offers an open and flexible platform without requiring fundamental redesign or changes to underlying technology. The openness of the platform enables better use of resources in creating new services and better integration with partner technologies.

### Technology enablers

#### Opera Devices SDK

Opera Devices SDK™ is the cross-platform, standards-based backbone of Opera for connected TVs: a browser, widget engine and application environment that is the foundation for customizability and personalization.



Opera for connected TVs SDK ecosystem

## Widgets

Widgets are small, standalone applications, developed mostly as shortcuts to useful content and information. TV programs and widgets can complement each other, providing the user with access to relevant content and context-sensitive information and services. Widgets' immediate access to Internet services, combined with a connectivity-middleware framework, adds value to the "linear broadcast viewing experience" and generates potential opportunities for revenue through advertising and other consumer outreach. The Opera Widgets™ for TV concept has become a comprehensive source of inspiration for development of various services. Opera can also provide an end-to-end widget framework.

## HbbTV/OIPF client\*\*

HbbTV produces signaling and terminal specifications for broadcast/broadband interactive services on TV while OIPF produces end-to-end specifications for IPTV. Large amounts of HbbTV are a subset of OIPF. Both initiatives share a common base: existing industry specifications, such as W3C, CEA and DVB. As part of Opera for connected TVs, the Opera Open IPTV Framework (OOIF) allows for the development of an HbbTV or OIPF client that optimally supports applications sourced from broadcasters, IPTV operators or OTT/service providers. With the Opera Devices HbbTV option, Opera can deliver a complete HbbTV application framework, including an application manager and support for DSM-CC and AIT.

## Benefits

Opera for connected TVs is a toolkit that enables flexibility and offers a way to future-proof ecosystem development and investment. Opera customers can be secure in the knowledge that regardless of how standards evolve, Opera supports them to ensure faster time-to-market, less development time and interoperability across platforms and devices.

\* demo

\*\* beta quality



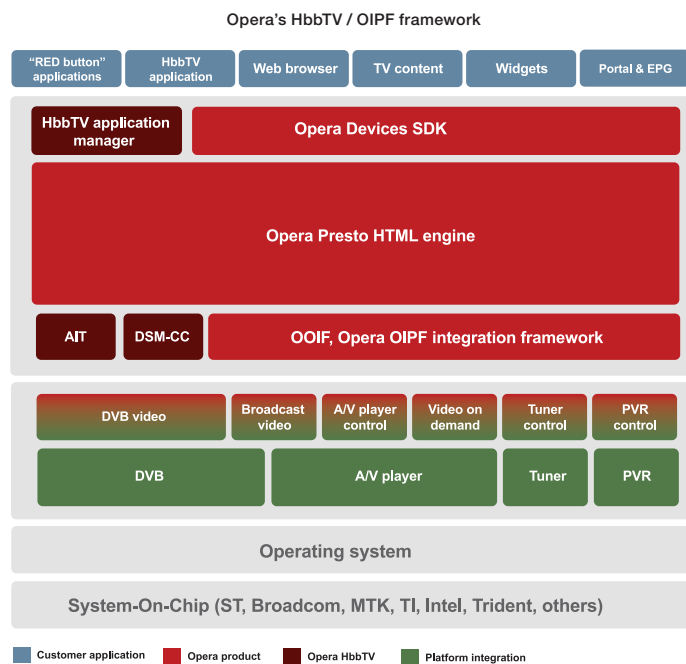
## Unlimited potential

### Opera Devices SDK is at the heart of Opera for connected TVs:

- State-of-the-art Web-standards support, thanks to platform-independent Opera Presto™ — the underlying technology of all Opera products, including HTML5, Ajax, JavaScript, W3C widgets and CSS3 visual effects
- Opera TV demo package\* as a source of inspiration to explore the potential of the widget engine and to allow, for example, TV viewers to interact with value-generating, popular and/or context-aware Internet services
- OOIF to ease and accelerate development of HbbTV or OIPF clients
- Hardware acceleration to boost performance when rendering Web-based content or user interfaces
- Support for popular STB/TV silicon platforms, such as, CE4100, BCM7405, SD8654 and ST7105
- And much more...

## Stay tuned

Opera for connected TVs opens new doors in terms of user choice and revenue possibilities. Pioneering companies can be aggressively innovative and contribute to shaping the future. The near-term future will bring closer interaction between users, Internet content and TV programs. Going forward, Opera for connected TVs is the platform that will help bring the concept to reality.



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